



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/684,528	10/06/2000	Andrew K. Percy	X-444-2P-2 US	1500
24309	7590	06/15/2005	EXAMINER	
XILINX, INC ATTN: LEGAL DEPARTMENT 2100 LOGIC DR SAN JOSE, CA 95124			AHN, SAM K	
			ART UNIT	PAPER NUMBER
			2637	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/684,528

Applicant(s)

PERCEY ET AL.

Examiner

Sam K. Ahn

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on amendment, received on 02/11/05.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 8, 9 and 17-21 is/are rejected.
- 7) ☒ Claim(s) 10-16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 21105.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see p.8, filed 02/11/05, with respect to the rejection(s) of claim(s) 8,9,17,18,20 and 21 under 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Liu et al. USP 6,014,063 (Liu) and Chengson et al. USP 5,790,612 (Chengson) as below.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1,2,8,17 and 19-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Liu et al. USP 6,014,063 (Liu).

Regarding claims 1 and 19, Liu discloses a method for spreading the electromagnetic emissions of a generated clock signal (note col.1, lines 17-26) that is created in response to a reference clock signal (FIN in Fig.5), the method comprising the steps of: providing the reference clock signal (FIN in Fig.5) to an adjustable delay line (52) having a plurality of selectable delay trim units (S0 ~ S3 in

Fig.8A selectable by 56); enabling a first set of the delay trim units (S1 enabled by 56) in the adjustable delay line, thereby causing the generated clock signal to exhibit a first clock period during a first set of clock cycles; enabling a second set of the delay trim units (S2) in the adjustable delay line, thereby causing the generated clock signal to exhibit a second clock period during a second set of clock cycles, wherein the second clock period is less than the first clock period; and enabling a third set of the delay trim units (S3) in the adjustable delay line, thereby causing the generated clock signal to exhibit a third clock period during a third set of clock cycles (note col.8, lines 38-67), wherein the third clock period is greater than the first clock period, and wherein the first, second and third sets of clock cycles are exhibited in a repeating regular pattern (as illustrated in Fig.7).

Regarding claim 2, Liu teaches all subject matter claimed, as applied to claim 1. Liu teaches the further limitations of enabling a fourth and fifth set of the delay trim units (see Fig.6 and note col.7, line 66 – col.8, line 67).

Regarding claims 8 and 20, Liu discloses a method for spreading the electromagnetic emissions of a generated clock signal (note col.1, lines 17-26) that is created in response to a reference clock signal (FIN in Fig.5), the method comprising the steps of: providing a delay line (52 in Fig.5 and further illustrated in Fig.6) in the path of the reference clock signal (FIN); and adjusting trim units (delay element) in the delay line in a pre-determined pattern or in a repeating regular pattern (note col.8, lines 38-67 wherein the Sequencer, 58 in Fig.5 generating a pre-

determined pattern, such as a0, a1, a2, a3, a3, a2, a1 and a0, periodically and repeatedly) during consecutive clock cycles (outputting as illustrated in Fig.8B).

Regarding claims 17 and 21, Liu teaches all subject matter claimed, as applied to claim 8 or 20. Liu further teaches wherein the generated clock signal exhibits different frequencies during successive cycles, the energy of the generated clock signal being spread equally over the different frequencies (clock frequency spreading, see Fig.1B).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3,4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. USP 6,014,063 (Liu).

Regarding claims 3 and 4, Liu teaches all subject matter claimed, as applied to claim 1. Liu discloses that unit delays are capable of delaying in the order of picoseconds ( $10^{-12}$  note col.9, lines 27-29). And further, Liu teaches that the delay elements (52 in Fig.5) may be configured to provide an output clock signal from any delayed version of the inputting clock signal (note col.7, lines 8-11). Although Liu does not explicitly disclose that the difference between the first clock period and the second or third clock period is about 50 picoseconds or

more, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to configure the unit delays such that the difference between the first clock period and the second or third clock period is about 50 picoseconds or more. Applicant has not disclosed that 50 picoseconds or more provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well with other configuration of unit delays because the delays in the delay trim units may require different delay time depending on the application needs. Therefore, it would have been obvious to one of ordinary skill in this art to modify Liu's system, thus to obtain the invention as specified in the claim.

Regarding claim 6, Liu teaches all subject matter claimed, as applied to claim 1. Although Liu teaches wherein excessive electromagnetic emissions from electronic systems cause problems to other systems and regulations have been set to regulate the amount of electromagnetic emissions from the electronic systems (note col.1, lines 40-50), Liu does not explicitly teach generating an overflow signal when a predetermined level is reached from the delay trim units. Thus, one skilled in the art at the time of the invention would not design a system to allow from producing a clock signal resulting in generating a clock signal that violates the regulation from emitting higher electromagnetic emissions from the electronic systems. Therefore, it would have been obvious to one skilled in the

art at the time of the invention to generate an overflow signal when a potential clock output would reach a predetermined level, and violate the regulation.

4. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. USP 6,014,063 (Liu) in view of Chengson et al. USP 5,790,612 (Chengson).

Regarding claims 9 and 18, Liu teaches all subject matter claimed, as applied to claim 8. Liu as explained previously, teaches the step of adjusting, however, Liu does not explicitly teach the step of providing an offset in the reference clock signal. Chengson teaches providing an offset (or compensate for a phase error, 102 in Fig.1) in the reference clock signal (130) and thus generates a compensated reference clock signal. Therefore, it would have been obvious to one skilled in the art at the time of the invention to offset the reference clock (FIN of Liu), prior to the Delay Array (52), by the Variable Delay controlled by the Control Circuit of Chengson (106) through the phase detector (104), thus, calculating the offset amount by increasing or decreasing the clock delay, for the purpose of outputting a clock signal with minimal phase offset or jitter. Chengson further teaches wherein the offset or the phase offset is selected (increase, decrease or lock) to minimize the worst-case skew (phase error) introduced between the reference clock signal (130) and the generated clock signal (137, note col.4, lines 11-37).

***Allowable Subject Matter***

Art Unit: 2637


5. Claim 7 is allowed.
6. Claims 10-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam K. Ahn  
6/7/05

 6/21/05  
OK Hst.  
TEMESGHEN GHEBRETINSAE  
PRIMARY EXAMINER